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Worldwide Report

NUCLEAR DEVELOPMENT AND PROLIFERATION

No. 42



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WORLDWIDE REPORT

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CONTENTS

WORLDWIDE AFFAIRS

International Antinuclear Conference Held in San Remo (NUOVA UNITA, 22 Mar 80).....	1
Switzerland Defends Nuclear Exports to Pakistan, Argentina (NEUE ZUERCHER ZEITUNG, 29 Mar 80).....	4
Nonaligned Nuclear Cooperation Conference Slated for June (TELAM, 5 Apr 80).....	6
Japanese Sale of Nuclear Device to Pakistan Halted (AFP, 29 Mar 80).....	7
Argentine Nuclear Ties With U.S., USSR, Brazil Discussed (TELAM, 3 Apr 80).....	8
Briefs	
Mexico-Spain Cooperation	9
Argentina-USSR Cooperation Discussed	9
Paris-Seoul Nuclear Cooperation	9

ASIA

INDIA

Foreign Minister Comments on U.S.-Indian Nuclear Pact (THE TIMES OF INDIA, 21 Mar 80).....	10
Briefs	
Nuclear Power Capacity	12
Tarapur Resumes Operation	12

CONTENTS (Continued)

Page

JAPAN

Government Decides on 1980 Nuclear Energy Development Plan (KYODO, 29 Mar 80).....	13
Okinawa Governor Calls on Okita on Radiation Issue (RYUKYU SHIMPO, 29 Mar 80).....	14
Agency Fails To Trace Radioactivity Cause in Okinawa (KYODO, 8 Apr 80).....	16
AEC Changes Policy, Drops Plan for Second Nuclear Ship (KYODO, 11 Apr 80).....	17
Briefs	
Nuclear Power Patrols	18

PAKISTAN

Plans for Nuclear Development Discussed (Various sources, various dates).....	19
Analyst View	
Nuclear Technology Program Viewed, by Viktor Boykov	
Indian Report Rejected	
Test Plan Denied	

TAIWAN

Briefs	
Nuclear Fuel Plant	22

EAST EUROPE

INTERNATIONAL AFFAIRS

Briefs	
GDR-USSR Power Station	23

CZECHOSLOVAKIA

Lenart, Hruskovic Receive Nuclear Power Workers (Prague Domestic Service, 28 Mar 80).....	24
--	----

YUGOSLAVIA

Need for Nuclear Power Plants (R. Jovanovic; PRIVREDNI PREGLED, 19 Mar 80).....	25
--	----

CONTENTS (Continued)	Page
Briefs	
Vojvodina Power Plants	27
LATIN AMERICA	
BRAZIL	
Domestic Production of Uranium Hexafluoride Stressed (Brasilia Domestic Service, 25 Mar 80)... ..	28
Briefs	
Atomic Bomb Plans Denied	29
MEXICO	
Future Plans for Nuclear Plants Outlined (Arturo de Aquino; EL SOL DE MEXICO, 21 Mar 80).....	30
Briefs	
Nuclear Safeguards	31
NEAR EAST AND NORTH AFRICA	
KUWAIT	
Briefs	
Purchase of Reactor Denied	32
SUB-SAHARAN AFRICA	
ETHIOPIA	
UN Should Impose Sanctions on Nuclear Aid to South Africa (Editorial; THE ETHIOPIAN HERALD, 4 Apr 80).....	33
SOUTH AFRICA	
Uranium Reserves Increasingly Important for World Energy Supply (Martin Spring; THE WINDHOEK ADVERTISER, 11 Apr 80)....	35
Scientist Discusses Atomic Energy Program (Johannesburg International Service, 30 Mar 80).....	36
USSR	
Briefs	
Fast-Breeder Reactor	37

CONTENTS (Continued)

Page

WEST EUROPE

INTERNATIONAL AFFAIRS

Poll Shows Majority Favor Franco-German Nuclear Bomb
(Alain Griotteray; LE FIGARO MAGAZINE, 15 Mar 80)..... 38

Portuguese Uneasy With Spain's Nuclear Power Program
(Benjamin Formigo; EXPRESSO, 15 Mar 80)..... 45

AUSTRIA

Results of Vienna Nuclear Fuel Cycle Evaluation Conference
(FRANKFURTER ZEITUNG/BLICK DURCH DIE WIRTSCHAFT,
6 Mar 80)..... 50

FEDERAL REPUBLIC OF GERMANY

Cover-Up of Atomic Power Plant Accidents Denied
(ATOMWIRTSCHAFT-ATOMTECHNIK, Mar 80)..... 54

Problems of Nuclear Waste Disposal Continue
(Norbert Klaschka; FRANKFURTER RUNDSCHAU, 31 Mar 80).... 57

FRANCE

Nuclear Reactor Shut Down for Several Months
(Beatrice Houchard; LE MONDE, 27 Mar 80)..... 59

Traffic Accident Involves Nuclear Materials
(L'HUMANITE, 26 Mar 80)..... 60

SWITZERLAND

Government Promotes Search for Uranium Ore
(Peter Amstutz; FRANKFURTER RUNDSCHAU, 22 Mar 80)..... 61

INTERNATIONAL ANTINUCLEAR CONFERENCE HELD IN SAN REMO

Florence NUOVA UNITA in Italian 22 Mar 80 p 8

[Article: "What Choices in Energy Policy?"]

[Text] An international meeting was held in San Remo on 8-9 March on the theme "Uranium mines in the maritime Alps are a menace to the environment, health, and employment." Speeches were made by Enzo Bernardini and Floriano Villa, presidents of the National Geologists' Association; Gianni Mattioli, of the University of Rome; and Mauro Politi of the University of Urbino. The speeches gave the scientific and legal reasons for which the committee against the uranium mines has been campaigning for months. This committee organized the conference, together with the communal administration and the tourist bureau.

Emphasis was placed on the radiation danger that would occur if the mines were opened. It would affect first of all the workers and, thereby, the people of the Italo-French zone interested in pollution of the air, water, and environment and the archeological heritage of the Valle delle Meraviglie. The extractive and processing phase of the nuclear fuel is the most dangerous for the workers, but the presence of substances deriving from processing (such as radon 222 gas) in the hydrogeologic system of Val Roja would present a serious risk for further hundreds of thousands of people.

The speakers said these dangers are incompatible with the marginal economic advantages that the French government can derive from the limited amounts of uranium available in the mines in question. Even in terms of international law, the mine development project conflicts with the principle that requires nations not to use their own territories and resources in a way that would endanger other countries. But when profits, or national prestige and an expansionist policy are at stake, as in this case, damage to nations and, especially, the health of the people definitely take a back seat. The concluding resolution of the conference asked the Italian government to take more action with the French government to stop work and come to a joint agreement on the use of Roja water. This action would be implemented by a mobilization of the populations affected by public controls with the representation of technicians and workers' representatives, and by social, ecological, and cultural organizations to insure the right to information, which is the determining factor in achieving these results.

The conference closed on Sunday 9 March with an active demonstration that several hundred people took part in. During the demonstration, a group of actors mimed allegories of uranium hazards; slogans were chanted, e.g. "We don't want any more mines, let's open them up in Gesu square"; "Diamonds from Bokassa, uranium from Roja: Giscard d'Estaing you're nothing but a goon," and other slogans against the DC [Christian Democratic Party] and monopolists' decision to go with nuclear power. Our party's banner carried the sign: "No to uranium mines, no to the DC's choice of nuclear power; for national independence and peace."

These results were achieved after about a year's action by the Committee Against the Uranium Mines, which was constituted unitarily by various parties: the PCd'I (m-l) [Communist Party of Italy, Marxist-Leninist], the PCI [Italian Communist Party], the PSI [Italian Socialist Party], the DP [Proletarian Democratic Party], the Radical Party, women's organizations and ecological and protectionist organizations in response to the threat of the mines' being opened. The unifying thrust was expressed in the words "No to the mines," but the debate has always remained open to various positions. The PCI leaders, for example, limited their "no" to the opening of the mines, thus keeping in line with the political opinions expressed at the national level, where the PCI favors accepting partially the national energy plan and building some nuclear reactors in order to meet energy needs. The PCI has consistently opposed broadening the Committee's theme. The extremist antinuclear ecology groups have a sometimes utopistic vision of the possibility of solving the energy crisis solely through alternative energy sources and do not consider the problem of industrial development and employment. They are basically motivated by a single principle: if a factory pollutes, close it.

Our party made a vital contribution to forming the Committee; it has worked to preserve unity on the minimum objective and to link this campaign to the directions presented in the Action Program on nuclear power, energy, and national independence. As was clearly stated by our representative to the conference, the French decision to open the mines is linked to the potential of its own civilian and military nuclear technology. There are two reasons for that: to reinforce its own neocolonialist policy in Africa (witness the interventions in Chad, Mauritania, the Central African Republic, and Zaire), and to strengthen its own hegemony in the European Community.

To beat these tactics, we need the maximum grassroots mobilization, and the workers' pledge to exert popular control over all public and diplomatic initiatives towards the French government and over test analyses from the affected zones in order to inform the people as much as possible. The problem is that of the nuclear choice, which is common to both France and Italy. For that reason we do not limit ourselves to opposing the French mines; we are also against Italian nuclear power plants. We do not, thereby, want to return to candles and horses and buggies; rather we want to say no to the DC government's energy policy, which was from the first subordinated to the interests of the monopolies and the multinational oil companies. Now it is subordinated to the nuclear companies that own the technology and fuel. The nuclear choice is desired by capital and is intended to turn the biggest profit possible by selling out our national independence to U.S. imperialism without any regard for the people's health. This choice represents a pie

worth billions of lire to be cut up and distributed under the benevolent supervision of the DC.

Our party's contribution to the conference indicated what tools are needed to beat the policy of the monopolies and the DC and to solve the energy problem: nationalization of the industry and development of energy sources; full utilization of national resources (water power and mining); financing research into new sources: solar, geothermal, and biomass. This would favor national independence and autonomous and independent science and research in the interests of the people.

8782

CSO: 5100

SWITZERLAND DEFENDS NUCLEAR EXPORTS TO PAKISTAN, ARGENTINA

Zurich NEUE ZUERCHER ZEITUNG in German 29 Mar 80 p 25

[Text] Bern, 26 March (sda)--Two simple inquiries by Andreas Gerwig (Basel-City) and Hans Schmid (St. Gallen), members of the National Council, who are afraid that Swiss deliveries might contribute to the production of atomic bombs, evoked comment from the Federal Council. Its reply states that Switzerland has made known its interest in the nonproliferation of atomic weapons by joining the Nonproliferation Treaty and the London Club. Neither the controversial deliveries of goods to Pakistan nor the production of a heavy water plant for Argentina violate these international agreements.

Gerwig had declared in the case of Pakistan that the export of feeding plants was especially critical. This delivery could be a significant contribution to the production of an atomic bomb which is currently in progress in Pakistan. In its reply the Federal Council states that the goods delivered to Pakistan are not on the lists of goods to be placed under export control. Moreover, the government is not in a position to provide details about additional planned exports which are not on the internationally established lists. In principle, Switzerland is of the opinion that possible changes or intensifications of the existing export program would have to take place in the framework of international agreements.

According to the Federal Council, the authorization of the export of a heavy water production plant to Argentina was in conformity with all international understandings presently in force. Argentina entered into certain obligations and the Federal Council is proceeding on the assumption that this country will also meet its obligations. All current nuclear activities in Argentina are under international controls. Gerwig's assertion that "Argentina could produce the bomb material plutonium with the heavy water production plant without the clearly complicated enrichment technology," is characterized by the Federal Council as incorrect. In order to be used for arms purposes, the fuel elements would have to be treated in a process that is costly both in terms of time and technology (reprocessing method). Thus, the reprocessing plant is the decisive stage in order to arrive at fissionable material which could be used to produce nuclear explosive devices. A heavy water production plant, on the other hand, represents only an important auxiliary facility in connection with natural uranium reactors.

The Federal Council further states that the difficulties, which have been emerging for several years, related to supplying Switzerland with natural uranium, are not involved in the above-mentioned deals. In addition, as of now no real supply bottlenecks have developed. To date there have been no problems of any kind in connection with the supply of enrichment services for our nuclear power plants. However, in as far as disposal is concerned, that is, in regard to exporting used fuel elements from Switzerland for processing to third countries (France, Great Britain), delays in the issuing of the necessary export approvals by the United States have been noticeable for some time now, because the Carter administration has spoken out against reprocessing at the present time and the approval process has been inordinately complicated by the Nuclear Nonproliferation Act.

12124

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WORLDWIDE AFFAIRS

NONALIGNED NUCLEAR COOPERATION CONFERENCE SLATED FOR JUNE

PY071717 Buenos Aires TELAM in Spanish 2200 GMT 5 Apr 80 1

[Text] Santa Fe, 5 Apr (TELAM)--Vice Adm Carlos Castro Madero, president of the National Atomic Energy Commission (CNEA), has said during an interview with the newspaper EL LITORAL that ~~A meeting~~ will be the venue of the first meeting of the coordinating group for cooperation in the peaceful use of nuclear energy next June. He added that representatives of the nonaligned countries will attend this meeting. The group was created during the ~~high~~ ministers meeting of the nonaligned countries in Belgrade in 1978.

Castro Madero indicated that a preliminary meeting was held in Belgrade in 1978 and that the first meeting will be held in Buenos Aires. He also said that delegates from Yugoslavia, Egypt, Algeria, Indonesia, Cuba, Nigeria and another African nation will attend the meeting. He also pointed out that the purpose of the meeting is to expand cooperation in the nuclear field for peaceful use. He said: "Our country can implement this expansion among the countries of the Third World, particularly with those countries which are beginning to demonstrate interest in the application of nuclear energy for peaceful use in the field of energy, nuclear medicine and the development of industry and agriculture."

CSO: 5100

JAPANESE SALE OF NUCLEAR DEVICE TO PAKISTAN HALTED

On 2204H Hong Kong AFP in English DAILY SUNT 27 Mar 80 CW

[Teletype Tokyo, March 27 (AFP).--The export of a piece of equipment vital to a uranium enrichment plant ordered by Pakistan from a Japanese manufacturer was halted in the nick of time in February last year, the ASahi SHIMBUN reports today.

The mass circulation newspaper said that the order for the equipment had been placed with the Japanese manufacturer by a London-based "dummy company" of the Pakistani Government, which is alleged to be developing nuclear weapons. In placing the order, the dummy company said that it was for use in a textile firm.

British intelligence learned of the case and notified the Japanese Foreign Ministry, and the Ministry of International Trade and Industry (MITI) turned down the application for permission to export the equipment which the Japanese manufacturer had filed. According to the British information, the ASahi said, the Pakistani Government may have established a dummy firm in England and had placed orders for equipment and parts for the enrichment of uranium, pretending it was for use in textile mills with makers in Japan, Britain, Switzerland and European countries.

The equipment ordered was a frequency converter costing more than 500 million yen (about two million dollars). The converter enables a centrifugal separator to revolve several times of thousands times per minute. It is one of the most important pieces of uranium enrichment equipment, the ASahi said.

The Foreign Ministry and MITI may have been keeping the matter secret for a year for fear of being criticized for having an imperfect screening system and also for fear of spoiling relations with Arab countries, the paper added.

CSO: 5100

WORLDWIDE AFFAIRS

ARGENTINE NUCLEAR TIES WITH U.S., USSR, BRAZIL DISCUSSED

PY031952 Buenos Aires TELAM in Spanish 0730 GMT 3 Apr 80 PY

(Text) Cordoba, 3 Apr (TELAM)--Vice Adm Carlos Castro Madero, chairman of the National Atomic Energy Commission [CNEA], has stated that since the supplying of enriched uranium to Argentina by the United States is in doubt "we are looking for other suppliers."

In a statement he made to the press at Cordoba's international airport last night shortly before returning to the federal capital, Castro Madero said that this extremely important element is used in research, reaction [reaccion] and irradiation reactors.

Asked about the difference between the safeguards offered by Argentina and those demanded by the United States, he pointed out that Argentina believes it must offer those guarantees it can on the basis of the technology it receives. There is some sort of relationship between the technology the country receives and the guarantees it should give. For its part, the United States is much more drastic in this respect, since it wished to have a commitment from all countries, including Argentina, that all present and future installations would be covered by safeguards.

Asked about the plans for an operation of fuel element factories, he said that everything has been going well and that a factory would be ready by June. He added: We are concluding the establishment of an enterprise which will be owned partly by the CNEA and partly by private concerns. The purpose is to make the best possible use of resources and obtain the cheapest possible fuel.

Regarding cooperation with the Soviet Union, Castro Madero said that it is more or less up to Argentina to make the decision. There is a good disposition on the part of the Soviets to cooperate with the Argentine nuclear plan. It is up to us to take the next step.

Regarding specific plans for cooperation with Brazil, he said that the idea is to help each other in the supplying of nuclear components. Brazil has a large factory for major components it wishes to use as soon as possible because the Brazilian nuclear program is a little behind schedule, and thus the Brazilians seek to participate in Atucha II.

He added: This will, of course, be acceptable if the Brazilians complement our national industry. Argentina could provide Brazil with the fuel rod containers they lack. Thus, in this respect, some complementary action could take place in this field and in the areas of security, information exchange and training, either in Embalse or Atucha. There is also a possibility of exchanging radioisotopes whenever we or they are unable to produce them.

He added: They are also interested in learning about our methods of separating uranium, since they will exploit the Poco de Caldas deposit.

BRIEFS

MEXICO-SPAIN COOPERATION--Mexico signed a nuclear cooperation plan with Spain. The plan, signed yesterday, includes six cooperation protocols in the field of nuclear energy based on a complementary agreement for the peaceful use of nuclear energy between the two governments signed in November 1978. [Mexico City International Service in Spanish 0300 GMT 27 Mar 80 PA]

ARGENTINE-USSR COOPERATION DISCUSSED--On 27 March G. V. Aleksenko, deputy chairman of the USSR State Committee for Science and Technology, received Jorge Coll, secretary general of the Argentine National Atomic Energy Commission. Prospects for bilateral cooperation in the sphere of the nuclear power industry and also questions of scientific and technical exchanges in that sphere were discussed. [Text] [LD021525 Moscow IZVESTIYA in Russian 29 Mar 80 Morning Edition p 4 LD]

PARIS-SEOUL NUCLEAR COOPERATION--The South Korean Electricity Company and the COGEMA [(French) General Nuclear Materials Company] will jointly exploit a uranium mine in the Lordleyon region of Gabon, according to an announcement made on Saturday [29 March] by a spokesman for the South Korean company. The latter will hold 41 percent of the shares and will have priority with respect to sales to other countries. Coincidentally, it has been learned that Seoul has decided not to place an order with the Framatome company for two nuclear reactors. [Text] [Paris L'HUMANITE in French 31 Mar 80 p 7]

CSO: 5100

FOREIGN MINISTER COMMENTS ON U.S.-INDIAN NUCLEAR PACT

Bombay THE TIMES OF INDIA in English 21 Mar 80 p 1

[Text] The external affairs minister, Mr P.V. Narasimha Rao, informed the Lok Sabha today that the government was ready with alternatives to meet any contingency arising from the nonsupply of nuclear fuel to the Tarapur atomic power plant by the U.S. But the time had not come to abrogate the agreement.

The minister was replying to a discussion on a calling-attention motion on the "complications" in obtaining nuclear fuel supplies from the U.S. during which members demanded the scrapping of the agreement with the U.S. government and seeking alternative sources of supply.

Mr Rao said the U.S. government had been asking for various additional assurances from India regarding safeguards which amounted to accepting full-scope safeguards over all nuclear facilities in India. The government had consistently replied that it could not accede to the requests.

He pointed out that what the U.S. administration was doing was to reiterate the old requests which India had never been able to accept. There were no fresh complications.

Mr George Fernandes (Lok Dal) said it appeared that the U.S. government was unable to reconcile its policy with the agreement it had signed with India. He wanted to know whether India could bring international pressure on the U.S. to honour its commitment.

In the alternative, would the government scrap the agreement saying "enough is enough?"

Mr Ramgopal Reddy (Cong.-1) said that India was using the atom for peaceful purposes, while the U.S. was helping the dictatorships all round the world. He wanted to know whether the Tarapur plant would close down for want of fuel or whether it was possible to get supplies from the USSR. He also suggested the recycling of the fuel.

The minister said that India had repeatedly expressed grave concern to the U.S. government at the inordinate delays in approving fuel supplies for Tarapur. The terms of the agreement were enforced in 1963 after fulfilling all statutory and constitutional requirements in both countries. They could not be unilaterally changed.

But that did not mean that India did not have any alternatives. The agreement could be abrogated. The government of India was, however, of the view that the time had not come for the abrogation of the agreement.

"No Refusal"

He said that India had abided by the agreement in its letter and spirit and expected the U.S. government to honour its obligations. "We have been in constant touch with the government of the U.S. regarding the continued supply of fuel on a regular and timely basis for the entire duration of the agreement, that is, till 1993, in strict accordance with the provisions of the existing cooperation agreement between the two governments."

The factual position was, he pointed out, that the U.S. government had not so far finally refused to make available supplies of fuel. But there had been persistent delays in fuel supplies during the past four years.

Two export licence applications for 19.8 tonnes each of enriched uranium for use as fuel by the Tarapur plant were currently pending with the U.S. authorities. One of these applications was filed on September 20, 1978, and the deliveries under this application were scheduled to have taken place between March and August, 1979.

The other application was made on August 20, 1979, and deliveries under it were scheduled to have commenced last month.

CSO: 5100

BRIEFS

NUCLEAR POWER CAPACITY--Mrs Indira Gandhi said in the house that the present capacity of nuclear power stations in operation in the country--two units at Tarapur and one in Rajasthan--is 640 MWe. The net capacity factors for these stations during 1979 were 53.24 percent and 63.58 percent respectively, she added in a written reply. Mrs Gandhi said the government did not propose to put in an major effort on the development of technology of extraction of uranium from sea water which was highly uneconomical. [Text] [Bombay THE TIMES OF INDIA in English 21 Mar 80 p 7]

TARAPUR RESUMES OPERATION--Unit number one of the Tarapur atomic power station went into production today. The unit was shut down in December last year for refueling and routine maintenance. With both the units of the power station now in full operation Tarapur has resumed supply of power to Maharashtra and Gujarat grids. [Text] [BK140907 Delhi Domestic Service in English 0730 GMT 14 Apr 80 BK]

CSO: 5100

JAPAN

GOVERNMENT DECIDES ON 1980 NUCLEAR ENERGY DEVELOPMENT PLAN

04295128 Tokyo KYODO in English 0008 ZMT 29 Mar 80 CW

[Text] Tokyo March 29 KYODO--A widely-diversified basic program for fiscal 1980 on Japan's nuclear energy development efforts and on environmental safety against nuclear energy mishaps has been decided by the Atomic Energy Commission and the Nuclear Safety Commission. The program, decided Friday, calls for start during fiscal 1980 of work to make the main body of a prototype of Japan's proposed fast breeder reactor (FBR).

Such prototype hardware production must be started during the coming fiscal year, at the latest, to attain the atomic energy commission-set target of making the prototype reactor reach criticality in fiscal 1987.

The commission's plan to launch construction of the prototype reactor named "Monju" after the Buddhist god of wisdom "Manjusri" has lagged behind schedule due to difficulties of sharing costs between the government and the electric power utility and allied industries.

The problem was partly solved last yearend as the governmental Power Reactor and Nuclear Fuel Development Corp. agreed with the cooperating industries to reduce the latter's share to 20 per cent from the original 50 per cent.

The program also calls for start during fiscal 1980 of work to design an experimental model of a multipurpose high-temperatures gas reactor (HTGR) to be used for nuclear-energy steel making and production of hydrogen as a new source of energy.

Preparations to build a reliable system of ensuring environmental safety against serious nuclear energy accidents also will be made in the new fiscal year.

Concervsed from the lessons gained from America's Three Mile Island nuclear power plant breakdown, such safety preparations are to be made for:

- Building of an emergency exclusive-circuit televax communication network among the central and local governments and all nuclear energy power and experiment stations.
- Building of an emergency environmental radioactivity monitoring system and an emergency medical relief system.
- Education and training of local government officials and other public service personnel on how to deal with radioactivity-leaking nuclear energy mishaps.
- A "PSDA (rig-of-safety Assessment) 4" plan to conduct a coordinated series of experiments to handle any possible accident involving splintering of a nuclear power reactor of pressurized water type and its resultant loss of a coolant.

The program also included a schedule to accelerate in fiscal 1980 the governmental Japan Atomic Energy Research Institute's project to build a nuclear fusion experiment plant to test plasma criticality by the target year of 1983 and conduct a check on the current nuclear ship Mutsu repair project as well as study the development of a better type of nuclear-powered engines for ships.

OKINAWA GOVERNOR CALLS ON OKITA ON RADIATION ISSUE

OW291 29 NANA RYUKYU SHIMPO in Japanese 29 Mar 58 Morning Edition p 1 OW

[Text] Okinawa Governor Nishino called on Foreign Minister Okita at the Foreign Ministry building and Director General Nagata at the Science and Technology Agency on 28 March to request a thorough probe into the high count of radiation at White Beach and safety measures to prevent similar incidents. He was accompanied by Labor and Liaison Department Director Ohana. Okita and Nagata, however, said that it would be difficult to determine the cause of the high radiation count unless the United States filed an investigation report as requested by the Japanese Government. Thus they indicated that it would be difficult for Japan to make its own investigation without U.S. cooperation.

Governor Nishino presented the following five-point request:

- 1) Port calls by nuclear ships at Okinawa be limited to a bare minimum.
- 2) Water-proof safety measures be taken when nuclear ships make port calls.
- 3) Inspections and the radiation measurement system be strengthened.
- 4) The purpose of a port call and its duration be specified.
- 5) A thorough probe be made into the cause of the high radiation count detected when the Long Beach left port, and the results thereof be made public.

According to Governor Nishino, both Foreign Minister Okita and Science and Technology Agency Director General Nagata avoided giving concrete replies to each of the above requests, except to say that they would "study the governor's requests."

Makimura, chief of the Science and Technology Agency's Atomic Safety Bureau, who sat in with Director General Nagata, said that the radiation count in question is not abnormally high and there is "no cause for alarm." As for the cause of the high count, he said, "The outcome of the on-the-spot investigation shows nothing that can determine the cause."

The governor asked the bureau chief "why it is hard to determine the cause." The bureau chief pointed out that because of the extraterritoriality of the U.S. warships, the Japanese side just cannot go aboard the ship for investigation. He also told the governor that the Science and Technology Agency is now closely examining undersea mud collected from White Beach, but that if the examination fails to determine the cause, the agency would have to wait until an investigation report prepared by the U.S. side reaches the agency. Thus, he reportedly stressed the difficulty of determining the cause. It is said that he also told the governor that the U.S. warship Long Beach might have thrown into the sea the radioactive waste from x-ray shots at its clinic, adding that however, nothing can be said definitely about this unless the report from the U.S. side reaches the agency.

Earlier in the day, Governor Nishime also called on Director General Hosoda at the Defense Agency and Director General Tamaki at the Defense Facilities Administration Agency (DFAA) to discuss the sewerage rates involving Kadena base. He asked the two agency chiefs to: 1) Make the U.S. side pay outstanding rates amounting to 190 million yen; and 2) Make the U.S. military conclude a new contract--this time, based on Japan's own related domestic laws--with the prefectural government through DFAA, which will take effect in April. The two Agency chiefs reportedly said that they will strive to resolve the issue. However, they are said to have also expressed the view that it will be "very" difficult to make the U.S. military conclude a new contract.

CSO: 5100

JAPAN

AGENCY FAILS TO TRACE RADIOACTIVITY CAUSE IN OKINAWA

OW080022 Tokyo KYODO in English 0015 GMT 8 Apr 80 OW

[Text] Tokyo April 8 KYODO--The Science and Technology Agency said Monday it has failed to trace the cause of the abnormally high reading of radioactivity recorded last month at White Beach U.S. Naval Base in Okinawa where the 7th Fleet's nuclear-powered cruiser was berthed.

At the agency's request, the Japan Analyzing Center checked the radioactivity of sea water and undersea soil samples March 16-17, but found only slight quantities of cesium-137, no cobalt-60, cerium-144, or zinc-65.

The level of cesium-137 detected in the seawater samples was below the maximum measured ever at the base.

A panel of experts studying the analysis results told the agency the same day that they could not find the cause of fluctuations in reading at monitoring posts.

CSO: 5100

JAPAN

AEC CHANGES POLICY, DROPS PLAN FOR SECOND NUCLEAR SHIP

OW110849 Tokyo KYODO in English 0829 GMT 11 Apr 80 OW

[Text] Tokyo April 11 KYODO--The Atomic Energy Commission made a major policy switch Friday retreating from its earlier policy of constructing a second nuclear-powered vessel. The commission said the era of practical use of nuclear-driven ships will not come until the 21st century. It said Japan should lay emphasis henceforth on research and development of marine reactors "small in size, lightweight, economical and outstanding in reliability."

Previously, the commission called for building a second atomic-powered ship to follow the nation's first nuclear-powered vessel Mitsu. Mitsu developed radiation leakage on its test cruise in August 1974, touching off a nationwide controversy. Subsequently the situation on the development of atomic-powered ships changed, necessitating the commission to reexamine Japan's policy. The commission took more than a year to change its policy.

The commission in its latest decision recognized the importance of continued development of nuclear-powered vessels, but at the same time admitted that there were mistakes in the basic policy of pressing ahead with the development program. It pointed out that the state, rather than the private sector, should assume a central role in research and development of "economical and reliable atomic-powered vessels," and that such efforts should be made "for a considerable long period."

This was considered a major retreat for the commission which apparently thought that the private sectors would take charge of constructing a second nuclear-powered ship.

The commission made no mention of a second atomic-powered ship in its latest policy switch. In its earlier policy worked out in 1961, the commission said practical use of nuclear-driven vessels would come in the latter half of the 1970's. It now saw no such prospect until the 21st century.

CSO: 5100

BRIEFS

NUCLEAR POWER PATROLS--Mito, Ibaraki Prefecture, 4 Apr--The Ibaraki Prefectural Police Friday inaugurated a special unit to patrol atomic power plants and other nuclear facilities at 15 locations in the prefecture. The unit consists of 93 men equipped with 11 vehicles, geiger counters, special clothing and other equipment. Some of the members have been receiving special training since last October on subjects including atomic energy and ways to prevent the "hijacking" of nuclear material. Tokai Mura and Oaraimachi in the prefecture are sites of facilities owned by the Japan Atomic Energy Research Institute, the Power Reactor and Nuclear Fuel Development Corporation and other organizations. [Text] [Tokyo KYODO in English 1235 GMT 4 Apr 80 OW]

CSO: 5100

PAKISTAN

PLANS FOR NUCLEAR DEVELOPMENT DISCUSSED

Analyst View

BK291609 Delhi Domestic Service in English 1530 GMT 29 Mar 80 BK

[Text] According to two analysts of the Institute of Defense Studies and Analysis in New Delhi, Pakistan had decided to make an atom bomb as early as 1972, 2 years before the Pokhran explosion by India. The two analysts say in their book "Nuclear Pakistan" the first nuclear test by Pakistan may come up late this year or early next year. The late Pakistan president, Mr Bhutto, adopted the path of uranium enrichment to make the nuclear bomb in 1972. A Pakistani metallurgist, Mr Abdul Madir Khan, joined a Dutch plant which was working for a top secret enrichment process to obtain information on the technology in 1972. This, the analysts describe, as a covert operation to achieve the goal. Mr Bhutto had simultaneously started negotiations with France in 1973 to get a plutonium reprocessing plant as an alternative path to make the atom bomb.

Nuclear Technology Program Viewed

LD310928 Moscow Radio in English to South and Southeast Asia 1500 GMT
30 Mar 80 LD

[Commentary by Viktor (Boykov)]

[Text] The French newspaper LE NOUVEL OBSERVATEUR has carried a report that there are strong indications that Pakistan is about to gain access to nuclear arms.

Nuclear research in Pakistan got underway 25 years ago. At the beginning of the seventies the Pakistani leadership decided to apply the experience in nuclear research and nuclear power equipment to development of nuclear arms. In 1976 the French Government agreed to sell Pakistan a plant for processing nuclear fuel. This decision was motivated by commercial considerations. At the time Pakistan insisted that it needed this plant for the peaceful application of nuclear research. But experts in various countries expressed strong doubts about that statement since the operation of the plant could only be economically justified in a country that has a ramified network of atomic power stations, whereas Pakistan had only one such station.

Another reason for concern was Pakistan's refusal to join the Treaty on the Nonproliferation of Nuclear Arms. In 1978 the British Labor MP Frank Ailaun said that high frequency inverters produced by the company Emerson Electrical Controls were sold to Pakistan. That report, too, caused concern because inverters of this type are used in gas centrifuges that are part of any uranium enrichment facility. Highly enriched uranium is, as you may know, needed for the production of nuclear arms. The Pakistani Government dismissed all suggestions of this kind and explained that it had purchased the centrifuges for a textile factory. However, it did not explain why all the arrangements concerning the purchase of the centrifuges had been made in secret. It turned out that the deal had been arranged through the British company (Waregate), the controlling interests of which belong to Mr and Mrs (Abdus Salam), who come from Pakistan.

Other Western companies, too, offered their services to Islamabad. The Soli Corporation's subsidiaries in Switzerland, Holland, West Germany, France and the United States assisted Pakistan in buying components for the gas centrifuge. An analysis of Pakistan's imports for the past few years leaves no room for doubt that the country has bought all the equipment necessary for setting up a uranium enrichment plant.

China has also been helping Pakistan to get nuclear technology. Some reports indicate that Beijing has been assisting nuclear research in Pakistan for the past 12 years. The British newspaper DAILY TELEGRAPH says that Chinese experts have been frequently visiting nuclear facilities in Pakistan, including the plant near Rawalpindi. There are strong indications that China supplied Pakistan with a part of the nuclear enrichment equipment that Islamabad had failed to buy on the Western market. When reports about intensive research into nuclear arms underway in Pakistan leaked to the press, the West hastily dissociated itself from Pakistan's nuclear plans.

Last year, in the spring, Washington announced the suspension of military aid to Pakistan but it changed its mind when Pakistan became a springboard for the subversive activity against Afghanistan of Afghan counterrevolutionaries supported by the reactionary forces in the West. The regional interests of the United States got the upper hand over the global danger of the proliferation of nuclear arms. According to the British newspaper SUNDAY TIMES, all this means that the West and China have given Pakistan a go-ahead as far as nuclear arms are concerned.

Indian Report Rejected

BK021620 Karachi Domestic Service in Urdu 1500 GMT 2 Apr 80 BK

[Text] The Foreign Office in Islamabad today described as incorrect and baseless a report published by the Indian Institute of Defense Studies and Analysis on Pakistan's nuclear program. The attention of the Foreign Office was drawn to a REUTER report from New Delhi which cited the above institute as saying that Pakistan may carry out its first atomic bomb test at the end of this year or at the beginning of 1981.

The Foreign Office categorically rejected the baseless report and said that Pakistan does not possess the capability to carry out any nuclear explosion in the future.

The Foreign Office said that the publication of such report at this time might be aimed at lending justification to India's own nuclear intentions and a prelude to its second nuclear explosion.

Test Plan Denied

LD081407 Moscow PRAVDA in Russian 4 Apr 80 p 5 LD

[TASS report: "Pakistan Foreign Ministry's Denial"]

[Text] Paris, 2 April--As AFP reports, the Pakistani Foreign Ministry has denied a report by the Indian Defense Studies and Analysis Institute that Pakistan might conduct a nuclear explosion at the end of this year or the beginning of next. The statement emphasizes Pakistan's readiness to hold "serious discussions" with India on making the area a region free from nuclear weapons.

CSO: 5100

BRIEFS

NUCLEAR FUEL PLANT--Taipei, 26 Mar--The Taiwan Power Company [Taipower] is considering spending \$40 million to build a plant for processing condensed vaporized uranium into nuclear fuel for use by its nuclear power plants, L. K. Chen, chairman of the power company, said Tuesday. Chen said such a plant would enable the company to save on nuclear fuel and thus lower its cost of power generation. The plant would also ensure a sufficient supply of nuclear fuel by providing a safety reserve. He said that by the end of this century Taipower will have established 20 nuclear power generators, which will need a big quantity of nuclear fuel. Therefore, Taipower should plan well ahead to build such a plant to reduce expenditure on nuclear fuel. Chen said three major U.S. firms have made contact with Taipower separately about the possibility of cooperating with Taipower in building the plant. Taipower will choose its partner after careful consideration of the three firms' qualifications and the needs of the Republic of China's long-range nuclear power development plan. [Text] [Taipei CNA in English 0250 GMT 26 Mar 80 OW]

CSO: 5100

BRIEFS

GDR-USSR POWER STATION--Berlin--Willi Stoph, the chairman of the GDR Council of Ministers, today received Semen Skachkov, chairman of the USSR State Committee for Foreign Economic Relations, who is currently on an official visit in the GDR. During the meeting, which took place in an atmosphere of fraternal friendship, views were exchanged on the further development of bilateral relations. Both sides agreed that the all-round cooperation between the GDR and the USSR is constantly growing in strength and depth. In the same context questions of economic and scientific-technical cooperation, including the joint construction of nuclear power stations in the GDR on the basis of the coordination last February of the state economic plans of the GDR and the USSR for the 1981-1985 period, were discussed. [Text] [LD102250 East Berlin ADN International Service in German 1630 GMT 10 Apr 80 LD]

CSO: 5100

CZECHOSLOVAKIA

LENART, HRUSKOVIC RECEIVE NUCLEAR POWER WORKERS

LD281943 Prague Domestic Service in Czech 1130 GMT 28 Mar 80 LD

[Text] Jozef Lenart, member of the Presidium of the CPCZ Central Committee and first secretary of the CPSL Central Committee, together with Miloslav Hruskovic, candidate member of the Presidium of the CPCZ Central Committee and secretary of the CPSL Central Committee, received a delegation of the builders of the Jaslovske Bohunice V1 and V2 nuclear power stations in Bratislava today. They received a report for the Central Committee of the CPSL and the Slovak Government on the commission of the V1 power station.

Comrade Jozef Lenart evaluated the efforts of hundreds of workers collectives and the collective of Soviet experts in implementing the decisions of the 15th CPCZ Congress and the 14th meeting of its Central Committee. He stressed that the successful commencement of operations at this significant power plant is the result of long years of joint work by Czechoslovak and Soviet workers and an example of the implementation of the principles of international help and cooperation.

The builders of the atomic power stations at Jaslovske Bohunice gave assurances that they will devote even more effort to the building of the next power station, the V2. The first output of the V1 power station saved the national economy more than two million tons of coal last year.

CSO: 5100

NEED FOR NUCLEAR POWER PLANTS

Belgrade PRIVREDNI PREGLED in Serbo-Croatian 19 Mar 80 p 11

[Article by R. Jovanovic]

[Text] With respect to the place of nuclear power plants in energy policy, Yugoslav ambitions seem to have become more realistic than the desires of various republics expressed a year or two ago. The opinion in the Community of the Yugoslav Electric Power Industry is that nuclear power plants are objectively necessary in the country's future energy development. But the number which can and should realistically be built up to the year 2000 has been reduced from nearly 20 to 6, for a total capacity of 6,000 MW.

"Three basic factors are essential in the commitment to nuclear power plants and their inclusion in the country's electric power system. First, it is realistic to expect that by the year 2000 Yugoslavia will need 230 billion kwh, which is more than fourfold present production, and that only at the end of this century will we join the countries which have a per capita consumption higher than 8,500 kw. Norway, Canada and the United States reached this figure before 1974, at least 16 years, that is, before we plan to. Other countries such as Finland, West Germany, Belgium, the GDR, Czechoslovakia, France, Austria and Bulgaria plan to attain that level of consumption between 1985 and 1990, that is, 10-15 years ahead of us," says engineer Slavko Vrhovac, manager of the department for development of nuclear power plants of JUGEL [Community of the Yugoslav Electric Power Industry].

Another decisive factor, Vrhovac continues, is that conditions have been created in the world for commercial use of nuclear energy, so that the introduction of nuclear power plants into the electric power system offers great opportunities to the Yugoslav economy as a whole and to science to master nuclear technology. And the third factor is that reserves of coal, which remains the basic source of energy, are nonrenewable, and it is therefore necessary to adopt an appropriate policy concerning conservation of the available raw materials and the rate of their exploitation. It is to be borne in mind in this connection that only 50 percent of the country's commercial hydroelectric potential has been utilized.

The basic question, Vrhovac continues, is this: How to achieve the desired production of electric power? All the analyses to date show that it is necessary and feasible between 1990 and the year 2000 to gradually include in the country's electric power system 6 nuclear power plants each with a capacity of 1,000 MW, which would represent only 17 percent of the total 230 billion kwh which are planned. Hydroplants would account for 22 percent of production, and coal-fired thermal plants would account for all of 61 percent.

"If this truly enormous program is to be carried out, thermal electric power plants with high unit capacities need to be built more rapidly, and then storage plants and run-of-river plants, and also pumped storage plants wherever possible. At the same time a start should be made on gradual construction of nuclear plants, again with high unit capacity, which should be preceded by a long-range examination of the fuel supply, and full protection of the environment must be taken into account," Vrhovac said.

"Nuclear plants are so safe from the engineering and technological standpoint that society needs only to create the conditions for those who manage this process to gain a faultless mastery of the necessary knowledge and to guarantee normal operation without consequences that would upset the ecological balance. To that end the member countries of the International Atomic Energy Agency in Vienna have prepared for signing the Convention on Physical Protection of Nuclear Materials, which Yugoslavia will also sign and which states precisely all measures to be taken so as to protect such objects from violent damage," Vrhovac said.

The economic consequences of the commitment to nuclear power plants were also borne in mind.

"Unit investments in construction of coal-fired thermal plants with an installed capacity of 1,000 MW, including construction of mines with a capacity of 10 million tons annually, have reached \$1.25 billion in the world. Unit investments in building storage and run-of-river hydroplants range about \$15 million per megawatt. Investments in a nuclear plant are twice as high. Unit investments for a nuclear plant with an installed capacity of 1,000 MW, not including mines, are \$1.5 billion. Another \$1 billion are needed to build the infrastructural installations of the nuclear fuel cycle reduced to serve a nuclear plant with a capacity of 1,000 MW. However, the price of fuel in unit production cost per kilowatt-hour of electric power has in the world reached 40 to 60 paras per kilowatt-hour, including transport, for thermal plants, while for a nuclear plant they are half as high, only 20-30 paras," Slavko Vrhovac concluded.

7045

CSO: 5100

BRIEFS

VOJVODINA POWER PLANTS--The projection of energy development in Vojvodina envisages the construction of two nuclear power plants by the year 2000. In the next medium-term period the preparations will begin for constructing the first such power plant of some 1,000 megawatts which should be completed in 1993. In Vojvodina it is stressed that possibilities exist for constructing several such power plans if funds are pooled with Serbia and Croatia. [Belgrade BORBA in Serbo-Croatian 31 Mar 80 p 1 AU]

CSO: 5100

BRAZIL

DOMESTIC PRODUCTION OF URANIUM HEXAFLUORIDE STRESSED

PY260059 Brasilia Domestic Service in Portuguese 2200 GMT 25 Mar 80 PY

[Text] An agreement signed today at Planalto Palace between the Mines and Energy Ministry and the Sao Paulo state government will give continuity to the production of uranium hexafluoride in the country with Brazilian technology.

For Gen Danilo Venturini, chief of the military household, the agreement marks another stage in the effort toward controlling nuclear energy. [Begin Venturini recording] This agreement aimed at producing uranium hexafluoride--which is essential for developing the fuel cycle--is in keeping with an effort that is already underway.

The agreement signed here today is earmarked for the installation of a second pilot plant--of medium size--which will certainly mark another stage in the effort we are making to harness nuclear energy. [end recording]

Mines and Energy Minister Cesar Cals also emphasized the significance of the agreement. [Begin Cals recording] The agreement we are signing here is in keeping with the energy policy adopted by President Figueiredo, who has given directives to seek both energy and technological independence. Thus, we are also seeking transfer of technology and development of national technology in every aspect of energy production. [end recording]

Sao Paulo Governor Paulo Salim Maluf said that national technology is the most important aspect of nuclear energy. [Begin Maluf recording] This process is 100-percent Brazilian, that is, it has been undertaken by Brazilian engineers and scientists with Brazilian-made equipment and represents Brazilian independence in this sector. On the one hand, we will not have to pay royalties or buy technology from foreign countries; and on the other, we are honoring Brazilian scientists, many of whom graduated from the University of Sao Paulo. [end recording]

CSO: 5100

BRAZIL

BRIEFS

ATOMIC BOMB PLANS DENIED--Rio de Janeiro, 27 Mar (AFP)--Adm Maximiano da Fonseca, navy minister, said here today that having nuclear plants and the technical capability to make nuclear bombs "does not mean that the country intends to make them." Adm Maximiano da Fonseca made these remarks to reporters in answer to a question regarding a statement by Antonio Didier Barbosa Vianna, nuclear physicist and retired officer of the Brazilian Navy, who said that the FRG-Brazilian nuclear agreement has military objectives and that Brazil will be able to make an atomic bomb within 10 years. Gen Jose Ferraz da Rocha, chief of staff of the Brazilian armed forces, said here today that "all the countries that have developed nuclear technology could use it for military purposes in the future. General Ferraz who made these remarks to reporters, added that matters related to nuclear energy will not be discussed during his forthcoming visit to the FRG next June. [Excerpts] [PY281518 Paris AFP in Spanish 0318 GMT 28 Mar 80 PY]

CSO: 5100

FUTURE PLANS FOR NUCLEAR PLANTS OUTLINED

Mexico City EL SOL DE MEXICO in Spanish 21 Mar 80 p 1-B

[Article by Arturo de Aquino: "Nuclear Plants for 5 Cities"]

[Text] Important cities such as Chihuahua, San Luis Potosi, Durango and Puebla will have nuclear plants according to provisions of the National Nuclear Development Plan.

EL SOL DE MEXICO learned that the sites for the plants have already been proposed and only political approval is needed for the Plan to be set in motion and for Mexico to get involved in earnest in nuclear energy.

Arturo Orozco, the technician at the National Nuclear Research Institute's Nuclear Center in Salazar, stated that each unit with responsibility regarding nuclear energy and its utilization, such as the Federal Electricity Commission (CFE) have already "made their input" on the way the nuclear industry should develop in Mexico.

He noted, however, that as can be expected people are waiting for a decision and meanwhile the work goes on but not as quickly as it should.

Also CFE announced that regarding its proposal on the type of plant to build, enriched uranium has received the nod over natural uranium because among other things there is already an enriched uranium plant at Laguna Verde.

Advice from Other Nations

All the same, it was stated that contacts are being maintained with firms in France, Canada and Germany to gather information on operations of both kinds of reactors so their advantages may be determined and so a definitive decision can be made.

What is not yet clear is how much uranium there is in Mexico; it was noted that Uramex has done very little about this aspect, since the firm's staff are involved in other projects and do not give Uramex much thought.

It was explained that much has been accomplished in Chihuahua, but the work is practically suspended at the moment because of lack of direction.

MEXICO

BRIEFS

NUCLEAR SAFEGUARDS--Radiation levels from the nuclear power plant at Laguna Verde, Veracruz will be watched constantly by the Subsecretariat for Ecological Improvement through 13 monitoring stations already operating in the area. This network of stations will be able to detect any change in the radiation level from the plant as well as determining the dose received by the residents via skin contact as well as through internal organs. A similar network will be set up in the uranium ore zone of the state of Chihuahua so that measurements can be made of the natural radiation occurring during extraction of uranium and refining operations at the concentrating plant. This network will begin operation in mid-1980, according to the Secretariat of Health and Welfare. [Text] [Mexico City EL DIA in Spanish 27 Mar 80 p 7] 11989

BRIEFS

PURCHASE OF REACTOR DENIED--'Abd al-'Aziz Husayn, minister of state for cabinet affairs, has said that Kuwaiti usage of a nuclear reactor for civil purposes is theoretically being considered by specialists and that this study "is still in its preliminary stages." The minister was commenting on highlights of an interview given to Radio Monte Carlo by Heir Apparent and Prime Minister Shaykh Sa'd al-'Abdallah al-Sabah, which were published by the local press yesterday. The interview gave the impression that Kuwait had signed a contract with France for the purchase of a reactor. The minister said that the matter of building a nuclear reactor in Kuwait "was not discussed with any supplier." The minister added "there are important considerations in our country which call for this matter to be the subject of a deep and slow study at the same time." [Text] [LD301652 Kuwait KUNA in Arabic 1200 GMT 30 Mar 80 LD]

CSO: 5100



UN SHOULD IMPOSE SANCTIONS ON NUCLEAR AID TO SOUTH AFRICA

Addis Ababa THE ETHIOPIAN HERALD in English 4 Apr 80 p 2

[editorial: "Pretoria's Nuclear Potential and its Threat to World Peace"]

[text]

South Africa's possession of nuclear weapon is not something that should be viewed lightly for it poses a great threat to Africa in particular and to world peace and security in general.

Detections carried out in 1977 and 1979 furnished tangible evidence that South Africa owned a nuclear device, which was believed to be of an advanced type. The revelation gave rise to world-wide reaction calling for an end to all forms of nuclear collaboration with the Pretoria regime. The world was asked to act immediately and effectively to upset the nuclear plans of the racist state.

At this junction, Pretoria's major collaborators in the West argued that their relations with it were purely of commercial nature, which they claimed will in no way give South Africa a nuclear capability. They clearly stated that collaboration with the Pretoria regime should be kept intact in order to convince the latter to adhere to the Nuclear Non-Proliferation Treaty.

On the basis of information made available in connection with the South African nuclear weapon, the issue is whether South Africa has tested such a device on a site at the Kalahari Desert. Little is known about it. But the most important point is that international scientists from many countries had been able to establish South Africa's nuclear potential. The same knowledge is also shared by the Western powers.

Western intelligence sources had been able to confirm South Africa's nuclear capability many years ago. The CIA also knew about it a long time ago.

A satellite had detected the explosion of a low-yield nuclear device around South Africa in 1979. But Washington kept the matter as a secret. The United Nations has repeatedly urged that investigations be conducted in this connection. A panel of international experts confirmed in January 1980 that the said explosion was from an atomic device. Glaring evidence had been produced that Pretoria had exploded a nuclear device in the Kalahari Desert.

Even then, the major Western powers are determined to continue their collaboration with South Africa in this particular field. While doing so, they are fully aware of Pretoria's evil designs, the threat it poses to international peace and security and its hostile policy towards neighbouring independent African states. The Western powers still maintain the argument that their collaboration with South Africa in the field of nuclear development is based on peaceful intentions. It was this same collaboration that after all enabled Pretoria to emerge as a nuclear power.

In considering the serious threat South Africa poses to African peace and security, we could at the same time clearly see the deep involvement of the Western powers in assisting the racist state to become a nuclear power. All this was designed to disrupt the liberation tide in southern Africa.

Despite the serious warnings voiced by Africa and the international community, the Western powers were going on with their plan to help South Africa develop nuclear weapon. The possession of a nuclear weapon by Pretoria is definitely dangerous to Africa as well as to peace and security in the world.

Long ago, apartheid South Africa has been heavily armed with conventional weapons supplied by its Western allies, and is now working to possess the deadly nuclear weapon.

Although South Africa's nuclear development programme is believed to be in its early stage, the international community should see to it that Pretoria never gets outside co-operation for the purpose of becoming a nuclear power in Africa.

Indeed, Pretoria's nuclear programme should be cut in the bud and that all forms of co-operation with it in this connection be brought to an end. Towards that end, the United Nations should impose mandatory sanctions to this effect so as to block the dangerous threat to world peace and stability which would result from possible accession of the fascist state to the status of a full-fledged nuclear power.

URANIUM RESERVES INCREASINGLY IMPORTANT FOR WORLD ENERGY SUPPLY

Windhoek THE WINDHOEK ADVERTISER in English 11 Apr 80 p 14

[Article by Martin Spring]

[Excerpt]

SWA and South Africa are emerging as major factors in the world energy supply situation because of their huge uranium reserves.

Recent disclosures about the uranium potential of Southern Africa highlight the region's growing importance as a supplier of nuclear fuel.

Dr "Ampie" Roux, chairman of the Uranium Enrichment Corporation, recently revealed that the RSA's uranium resources are very much larger than previously estimated.

The International Atomic Energy Agency 18 months ago put the reasonably assured and estimated additional resources of SA and Namibia together at 455 000 tons of uranium oxide at prices up to 50 dollars a pound.

Now Dr Roux says the figure for the Republic alone is 625 000 tons. SWA's reserves have never been separately disclosed or even estimated, though it has been widely

reported that they may equal or even exceed Australia's (about 8 percent of Free World reserves).

Last year the RSA produced 4 674 tons of oxide, worth about R500 m and providing 11½ percent of Free World supplies. Judging from published overseas estimates, it appears that Namibia probably supplied almost as much again.

Dr Roux forecasts that annual production capacity of the Republic alone will reach 13 000 tons by the early 1980's should demand warrant expansion to that level, and it will be possible to sustain output at that rate until well into the next century.

SA has several large production projects coming on stream such as the Beisa and Afrikander Lease mines and expansions at the Vaal Reef and Randfontein mines.

In SWA the Rössing mine is due to reach full production soon if it has not already done so, but there have been no announcements yet of additional mines.

SOUTH AFRICA

SCIENTIST DISCUSSES ATOMIC ENERGY PROGRAM

LD302145 Johannesburg International Service in English 2100 GMT 30 Mar 60 LD

[Text] The president of the South African Atomic Energy Board, Dr Wynand de Villiers, has said nuclear power stations have an admirable safety record. Speaking in an SABC [South African Broadcasting Corporation] radio program on the future of nuclear power generation in South Africa, he said there had not been a single death in a commercial nuclear power station that could be ascribed to a nuclear accident. Dr de Villiers also dismissed the possibility of nuclear arms being a byproduct of South Africa's nuclear power program.

This was because spent fuel would be processed outside South Africa and the International Atomic Energy Agency would undertake regular inspections of the new Koeberg plant to see that none of the material was diverted for military purposes.

Looking to the future a physicist Dr (John Walmsley) said it was generally hoped that solar power would become economically viable one day. For the present, however, its only economic use was for the heating of water. If solar power was (used) now to generate electricity this would cost up to sixteen times as much. Dr (Walmsley) said solar, wind and wave power would probably only become economic in the next century.

CSO: 5100

BRIEFS

FAST-BREEDER REACTOR--Moscow PRAVDA in Russian on 13 March 1980 publishes on page 23, under the rubric "Nuclear Energy: Steps Into the Future," the headline "Urals Giant," a 2,000-word report by special correspondent V. Gubarev on a visit to the Beloyarskaya AES, which uses the sodium-cooled BN-600 fast-breeder reactor. Gubarev outlines the development and principles of the fast-breeder reactor and describes some of the engineering difficulties entailed in the use of sodium as a coolant. He provides an account of the commissioning of the reactor, noting that "the day is near when electricity from the BN-600 will enter the Urals power system." He makes no mention of the problems involved in handling plutonium. [LD281531 Editorial Report LD]

CSO: 5100

POLL SHOWS MAJORITY FAVOR FRANCO-GERMAN NUCLEAR BOMB

Paris LE FIGARO MAGAZINE in French 15 Mar 80 pp 64-67

[Article by Alain Griotteray: "The French and International Politics: Yes to the Franco-German Bomb"]

[Text] Exclusive SOFRES-FIGARO-MAGAZINE public opinion poll: the French are satisfied with the government's foreign policy and concerned about the role played by their country in the world. One surprise: they are ready to accept a joint defense with the FRG.

Contrary to a widespread opinion, the French take an interest in their country's foreign policy; they know that France plays a certain role in the world, and they watch the evolution of present events with a mature and lucid attitude. The president of the republic was right to state that his policy meets with broad support from people of every political leaning. The public opinion poll published today by LE FIGARO MAGAZINE shows that the socialist leaders were wrong in denying it. They run the risk of appearing to be in contradiction with their own party basis.

Like UDF [French Democratic Union] and RPR [Rally for the Republic] voters, socialist voters, for the most part, approve the manner in which the president of the republic has been directing France's foreign policy during the past years. By far the most significant opinion is that concerning solidarity between France and the FRG: 68 percent of our compatriots think it is a good thing, 13 percent only criticize it. Moreover, approximately half the communist voters who expressed an opinion approve it; 74 percent of socialists are in favor of it. Young people, from 18 to 24, are for it as a matter of course (71 percent), while the generation over 50, who have known war, defeat, occupation and victory, concur without any hesitation (70 percent).

European civil wars appear to have become a thing of the past for the French. "France and Germany must never part again," General de Gaulle said. The French have understood that so well that they are ready to accept a joint defense system, a joint nuclear force between France and Germany. The majority in favor is a narrow one but, nevertheless, who would have imagined such a change of opinion only 10 years ago?

In fact, the two pillars on which the founder of the Fifth Republic proposed to support foreign policy and defense--the striking force and the Franco-German alliance--are approved by a large majority. Our military power has regained its credibility. Seventy-eight percent of the French who expressed an opinion on this subject believe that it enables France to exert a real influence in the world.

An analysis of the poll results also shows the existence of a "neutralist" minority. To the question: "What do you think is the best solution to ensure France's security?", 41 percent of those who expressed an opinion would wish total neutrality, exclusive of all alliances. This, of course, is a minority opinion, but one can wonder whether it does not reveal a naive desire for security echoed, on the other hand, by the reaction of those who believe that a policy of solidarity with the United States is indispensable because they feel a need for protection.

While not everybody trusts the Americans, and although a certain reserve toward them is noticeable, almost nobody (1 percent) would wish an alliance with Russia! What an answer that is to Georges Marchais who is always so ready to speak in the name of the French people.

Reservations are expressed toward the president's African policy. True, a majority is in favor (58 percent of those who express an opinion), but 42 percent are against it and, above all, 1 Frenchman out of 3 has no opinion.

It is among young people, 18 to 24, that opposition to France's action in Africa obtains a majority (36 against 31). The president recently reminded us that he is in charge of the security and the interests of the French people. It appears that the latter are concerned primarily with security. They have to be constantly reminded that defending their interests sometimes implies taking a few necessary risks. The same young people who say they are conscious of their country's power (67 percent), of its influence (68 percent) are "rather against" the striking force (54 percent).

All the same, it is almost surprising to find in this age group such a strong minority (46 percent) in favor of our nuclear policy. There are reasons, in fact, why it is surprising that these generations should, to a certain extent, be clearsighted in spite of the pressure to which they have been subjected. The prevailing ideology, which has managed to eliminate the word fatherland, as applied to France, from their vocabulary, has not been able to completely erase all traces of history.

Because they have known nothing but peace, they no longer know that peace is something you have to work for; they have been overcome by a dangerous optimism concerning the nature of international relations and the dangers which always threaten a nation's liberty and independence. They have been given only an incomplete presentation of international problems for such a long time that they could be excused if they were wrong. But they have

resisted the marxist and simplistic interpretation of history. And their participation in building France's future would be stronger if they were better informed of the state of the world.

The president of the Republic has decided to speak frequently to the French about France. Since his trip to the emirates, the position he has taken on the Palestinian question has given a new dimension to his action. Again, he shall have to outline France's legitimate ambitions in the Middle East and to explain how it can play an efficient role in the search for peace without Israel's running the risk of being the victim.

In fact, this poll shows that public opinion's participation in the president's policy is larger when his policy shows more continuity in time and when greater efforts are made to associate public opinion to it. This is one of the conditions for success, and Valéry Giscard d'Estaing has understood it.

SOPRES Technical Data

- Public opinion poll made for LE FIGARO MAGAZINE
- Date of poll: 22-27 February 1980
- Nationwide sampling of 1,000 people representative of the population as a whole (18 years' old and over)
- Method of quotas (sex, age, occupation of head of family) and distribution by region and by category of population density.

Key to Tables: PC = Communist Party
 PS = Socialist Party
 UDF = French Democratic Union
 RPR = Rally for the Republic

Two Thirds of French People for Entente With FRG

Question: As you know, France and the FRG have adopted a common position on foreign policy problems. Do you believe that this solidarity between France and the FRG is rather a good thing, or rather a bad thing?

	All together	Political leaning			
		PC	PS	UDF	RPR
- Rather a good thing	68	38	74	85	79
- Rather a bad thing.	13	43	11	3	11
- No opinion.	19	19	15	12	10

A Majority (43 percent) For a Joint Nuclear Force

Question: Some wish that, in the years to come, France and the FRG would pool their efforts to have a joint nuclear force. Personally, would you be for or against a joint nuclear force between France and the FRG?

	All together	Political leaning			
		PC	PS	UDF	RPR
- For	43	24	44	62	50
- Against	35	62	39	18	33
- No opinion.	22	14	17	20	17

Socialists Approve Foreign Policy

Question: Personally, do you agree with the manner in which Mr Giscard d'Estaing has been directing France's foreign policy during the past few months?

	All together	Political leaning			
		PC	PS	UDF	RPR
- Agree	49	19	45	78	64
- Do not agree.	28	61	30	7	22
- No opinion.	23	20	25	15	14

Yes, With Reservations, to the African Policy

Question: By and large, are you rather for or rather against France's policy in Africa?

- Rather for	39
- Rather against	28
- No opinion	33

Sixty-Four Percent Believe France Has Considerable Influence

Question: On the whole, would you say that France's influence in the world is very great, rather great, rather small or very small?

	Reminder: SOFRES poll, March 1979		March 1980	
- Very great	8	} 59	8	} 64
- Rather great	51		56	
- Rather small	28	} 31	27	} 29
- Very small	3		2	
- No opinion		10		7

Acknowledge Growth in Power

Question: Would you say that France's military power has rather increased or rather decreased in the past few years?

- Rather increased	51
- Rather decreased	14
- No opinion	35

One Frenchman Out of Two in Favor of Striking Force

Question: Are you very much in favor, rather in favor, rather opposed, or very much opposed to the French nuclear deterrent force, i.e. to the striking force?

	Reminder: Louis Harris France poll, September 1977		March 1980	
- Very much in favor	17	} 49	15	} 50
- Rather in favor	37		35	
- Rather opposed	19	} 38	20	} 35
- Very much opposed	19		15	
- No opinion		13		15

French People in Favor of a "Third Way"

Question: Among the following possibilities, which would you chose?

	All together	Political leaning			
		PC	PS	UDF	RPR
- In this time of international crisis, France should clearly affirm its solidarity with the United States	9	6	10	8	19
- France must maintain its solidarity with the United States, but it must also treat the USSR with consideration, in order to maintain detente possibilities between East and West.	51	37	52	67	56
- France should not show any solidarity with the United States who are about as much responsible for the international crisis as the USSR. . .	20	24	24	13	13
- France should affirm its solidarity with the USSR	4	17	4	1	-
- No opinion.	16	16	10	11	12

Defense: Reserve Toward the United States

Question: Which do you think is the best solution to ensure France's security?

	All together		Political leaning			
	Reminder:					
	Harris France poll, January 1979	March 1980	PC	PS	UDF	RPR
- Participation in a military alliance between West European countries and the United States . . .	19	21	10	19	31	32
- Participation in a military alliance between West European countries, independently of the United States	28	28	19	37	33	23
- Participation in an alliance with the USSR	2	1	3	2	-	-
- No participation in any alliance, assume a totally neutral attitude . .	30	36	55	34	27	33
- No opinion.	21	14	13	8	9	12

Majority Pleased With French Attitude Toward USSR

Question: After the Soviet army's intervention in Afghanistan, do you believe that the French government's attitude toward the USSR has been...

	All together	Political leaning			
		PC	PS	UDF	RPR
... too conciliatory	21	11	27	23	31
... not conciliatory enough.	12	25	11	8	8
... correct.	42	34	42	49	47
- No opinion	25	30	20	20	14

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CSO:5100

PORTUGUESE UNEASY WITH SPAIN'S NUCLEAR POWER PROGRAM

Lisbon EXPRESSO in Portuguese 15 Mar 80 pp 8R, 9R

[Article by Benjamin Formigo: "An Ambitious Project for which Portugal Also Pays the Bill"]

[Text] The existence of Spanish nuclear powerplants near rivers that flow through Portuguese territory or close to our border is still -- after 4 years of attempts on the Portuguese side -- not being regulated by any specific bilateral agreement, because, on the Spanish side, there has always been a systematic refusal to discuss the nuclear issue. On the other hand, the nucleoelectric program that the Spanish Government has approved is still a domestic problem for the government and is the target of frequent protests and street demonstrations. More than once, these protests have ended by tackling other problems, like unemployment and the agrarian reform.

Nuclear Powerplants Built Without Legislation

When Spain started its nucleoelectric program, at the beginning of the 1960's, there was only one law for which regulations were issued only in 1968, that is to say the regulations pertaining to nuclear facilities for the production of electricity were promulgated in the same year in which the Zorita nuclear powerplant (on the Tagus River) went into operation and the Santa Maria de la Garona powerplant (close to Burgos) and the Vandellos powerplant (on the Mediterranean) were in their final phase.

Concerning agreements between Portugal and Spain, there was only a protocol pertaining to the use of the atom for peaceful purposes. Since then, the Portuguese authorities have tried to obtain the signing of an agreement that will protect our interests, ensuring normal operation of the CN's [nuclear powerplants] and in case of accident.

For some time now, there has been a good working relationship between the Portuguese technicians in the Bureau of Nuclear Safety and Protection and the technicians on the Spanish Nuclear Energy Board on the technical level, but on a purely private basis. Up to now, Portuguese agencies have had no

control over possible contamination of water caused by the discharge of liquid effluents from the CN's, in addition to what is done on Portuguese territory and totally paid for by our authorities.

In view of this situation, in case of accident or contamination, alarm would be sounded late, all the more so because those measurements are made in the Tagus, normally close to Lisbon. In 1970, the reactor of the Spanish Nuclear Energy Board happened to have discharged radioactive effluents accidentally in the Tagus River. The Madrid authorities kept silent regarding this accident until the then Portuguese Nuclear Energy Board protested against the contamination detected in its measurements.

A Vague Agreement

After several official negotiations, a Portuguese delegation, headed by Ambassador Mario Neves, succeeded, in 1977, in having the Spaniards agree to the need for a permanent joint committee on nuclear matters. Shortly after this recognition, the Lisbon government appointed its representatives to that committee, a move that has not been reciprocated, up to now, by Madrid.

Later, in December 1979, the signing of a protocol was achieved. It aimed at a consistent territorial regulation, quality of life and a rational management of water and environment. Nevertheless, during the meetings leading to that agreement, a Portuguese technician attempted to touch specifically on the nuclear issue, a topic that was rejected right at the start by the director general for Spanish Environment, Maria Teresa Estevan Bolea, who went so far as to imply that this protocol would not be viable, if we insisted on the nuclear issue. The matter was settled, thanks to the two secretaries of state and also thanks to the fact that the Portuguese brought, in keeping with previous meetings, a draft of an agreement totally prepared and on which they made the whole discussion fall.

Up to now, however, this agreement has not been ratified by either of the two governments. It is also reported that the document only safeguards general issues, stressing water, but leaving the problem of locating CN's or reprocessing stations close to the border or on international rivers open. This locating depends solely on Spanish will, because they reject the topic maintaining that its discussion is Portuguese meddling in Spanish domestic matters of which the nuclear option is an integral part. Nevertheless, the reservations expressed by the Portuguese technicians concerning installation of a CN at Sayago, 14 kilometers -- in straight line -- from Miranda do Douro, together with the opposition of the residents on both sides of the border, have deferred construction of this powerplant, which already has its site authorization -- that is to say approval of the place where it is to be constructed -- which precedes prior permit and construction. Operation authorization will be given, annually, only after checks have been made by Spanish JEN [Nuclear Energy Board] technicians.

Nuclear Facilities Close to the Border

Coming down along the border, we are going to find, a few dozen kilometers from Vilar Formoso, close to Ciudad Rodrigo -- at Saelices el Chico -- a uranium extraction and uranium oxide production complex. Then, the uranium oxide is transported by highway on the road to Hendaye. Meanwhile, the Spanish nuclear plan provides for the installation of a fuel element reprocessing station at Juzbado, close to Salamanca. This station is particularly being protested against, in view of its high degree of risk. Fuel elements irradiated in the reactor core, and, therefore, highly radioactive, are destroyed in reprocessing plants and they proceed to recover radioactive isotopes, transuranium elements that can still be used, especially plutonium, highly toxic. This operation goes through a series of phases carried out in various parts of the complex. This entails a pronounced risk of accident owing to leaks, spills, and so on, as has already happened at La Hague, in France. It is reported, in this connection, that the United States has desisted from reprocessing.

This project, like uranium mining itself, has caused protests by mayors, some of them UCD [Democratic Center Union] members and by the people, politically conservative. We are not faced with an essentially political phenomenon, as some unconditional supporters of nuclear energy attempt to have us believe, but rather with a protest against a project (reprocessing) and a reality (mines) based, on the one hand, on matters of safety -- from which the activity of ecological movements has not been disassociated -- and, on the other hand, on the fact that uranium mining itself involves some risks, especially risks caused by the fact that, during mining, a gaseous element -- radon, radioactive -- is released, which causes illness among the miners. It is also true, however, that among some there is a certain degree of fear, somewhat irrational, of the unknown. In this connection, it is reported that in Extremadura, in Badajoz Province, they have already proceeded to mine uranium washed in the water of the Guadiana River, a fact that has never been known by Portuguese public opinion.

Protest in Extremadura

Now that the Almaraz issue, a powerplant that did not bring any progress, objectively, to the area in which it is installed, has been set aside, new protest foci are coming up in the south, in Extremadura. This movement culminated, at the end of 1979, in the voluntary confinement of 75 mayors in the [Council] Chamber of Villanueva de la Serena.

The plan for building one more CN in Vale de Caballeros led the mayors of Villanueva and of Don Benito (this one a PSOE [Spanish Socialist Workers Party] member) to start a protest movement against the project, in a series of issues that were raised by the residents, by the Irrigation Committee (made up of local large landholders) and by ecological movements.

The argument is based primarily on three different points: Extremadura produces, with its hydroelectric powerplants, more power than it consumes; the swimming pool needed for cooling the CN cooling water eliminates, according to the Irrigation Committee, the possibility of irrigating close to 400,000 hectares of land and also the problem of nuclear safety, known to some extent, since it is known in that area what the risks of mining already engaged in at La Haba are.

The first movement culminated in a demonstration in front of the Villanueva City Hall, where the mayors were confined and it overcame the obstacles raised by the authorities against holding it. In addition to prohibiting it, the authorities ordered the roads leading to Villanueva cut off.

The people took advantage of the opportunity to demonstrate also against unemployment, which is high in that region, against the cost of living and they talked about the agrarian reform. In view of this movement that was being managed by the PSOE and the PCE, they felt that it had gone too far and they upbraided the mayors, demobilizing the movement with a debate in Parliament and with promises extracted from UCE, made through the chairman of the Board of Extremadura.

In spite of the fact that the movement had been demobilized and that now there was some indifference, the large landholders continued to protest against the CN, in spite of the promises of compensation, maintaining that it should be moved close to the Portuguese border, where it would not jeopardize the Extremadura irrigation projects.

The Vale de Caballeros CN already has its construction authorization, simply the start of construction has been postponed, because, according to sources close to the Nuclear Energy Board, in Madrid, a review had to be made of some matters pertaining to its location, because the terrain could not support the weight of the buildings.

In addition to the domestic issues in Spain, it must be known whether the volume of water delivered by the Guadiana to Portuguese territory will be sufficient after construction of the CN "swimming pool." It should be recalled, in this connection, that the more than questionable Alqueva plan depends greatly on the volume of water in the Guadiana. Moreover, it should be pointed out that contamination of the water and the micro-organisms living in it by radioactive isotopes always exists, that the concentration of specific isotopes (like iodine 131 or strontium 90) in the food chain is a fact (see Windscale and Colorado) and that the water of the Guadiana serves irrigation ditches in Portugal.

Technological Dependency and Diversification of Technologies

In addition to all these matters, another perhaps more important topic has to be discussed: technology.

In this field, Spain -- like many other countries -- is restricted to importing technology. Up to now, it has been importing it from three different countries: the United States, France and the FRG. In addition to that, with regard to the United States, it is about to diversify its technology still more by adopting two different types of reactors: PWR (pressurized water reactor), in the case of Almaraz, and BWR (boiling water reactor), in the case of Vale de Caballeros.

In the opinion of some Spanish technicians -- who agreed to talk with us only informally as mutual friends -- this diversification of technology only contributes to a greater difficulty in standardizing safety standards and personnel training. This matter, although apparently it is secondary, is receiving attention, at present, all over the world. In fact, the risk of accident owing to human failure has been revealed, in the very countries producing technology, to be much higher than originally estimated.

Human error has given rise to a number of accidents -- like the Three Mile Island accident -- that might have led to melting of the core containing several tons of irradiated uranium (also a situation regarded as more than unlikely in a nuclear reactor). If the core of a CN should melt, in view of its high temperature it would perforate the earth's crust and little is known on the real consequences of that kind of accident. The immediate number of deaths is estimated at several thousand and the number of long-range deaths amounts to around 30,000. Beyond that, there is little more to assume.

In conclusion, it is reported that the Almaraz CN (on the Tagus), which has been undergoing tests for close to 6 months, has "sunk" several centimeters in the terrain, according to our sources, and that there are vibration problems in the primary circuit piping of the swimming pool (the one that directly cools the reactor core). In addition to that, there is no study on the dispersion of radioactive effluents in the swimming pool in case of accident. None of these matters is, however, impossible to solve technically.

With regard to the CN at Cofrentes -- a port on the Mediterranean -- still under construction, a welding quality control technician has revealed publicly that welding was being accomplished with improper electrodes and that they would be defective for that reason. The construction company admitted, only some time after this revelation, that there were "some problems in the welds," attempting to assign a political nature to the matter and to reduce its dimensions. The use of improper electrodes would have gained time in construction of the CN and this, obviously, would make its cost lower.

In this case also, we are not confronted by an insoluble problem. A solution of these shortcomings requires a high expenditure of capital and, therefore, an attempt is made to reduce to the minimum defects to be corrected.

"The China Syndrome," a film that ran in our country a relatively short time ago, was not merely, and especially not, fiction.

RESULTS OF VIENNA NUCLEAR FUEL CYCLE EVALUATION CONFERENCE

Frankfurt/Main FRANKFURTER ZEITUNG/BLICK DURCH DIE WIRTSCHAFT in German
6 Mar 80 p 7

[Article: "Results of Vienna Nuclear Fuel Cycle Evaluation Conference"]

[Text] In February of 1980 the final meeting of the International Fuel Cycle Evaluation Conference (INFCE) was concluded in Vienna, with more than 40 nations from the East and the West participating. Third World nations in particular were intensively involved in the activities of this conference. Problems ranging from uranium requirements to final storage of radioactive waste were discussed in the various working groups. The following is a summary of the results. The statements are based on an analysis conducted by the Research Ministry and on comprehensive reports available at the conclusion of the conference.

Uranium Requirements

In the mining cost range of up to \$130 per kg of natural uranium, proven uranium supplies of 2.6 million tons are estimated for countries outside the East bloc, 80 percent of which are located in Australia, Canada, the United States and South Africa. In addition, it is speculated that 2.4 million tons of uranium exist, so that 5 million tons of uranium which can be mined with the stated costs are considered available to date. Further, uranium supplies of 6.6 to 14.8 million tons are assumed to exist, according to speculations and can be recovered at mining costs of \$130 per kg. These supplies are termed "speculative" because the assumption of their existence is essentially based on the fact that so far only parts of the earth have actually been searched for uranium. However, the credibility of these data is very uncertain.

In addition, unconventional supplies exist, e.g. uranium in slate, coal and sea water. These will not significantly contribute to the uranium supplies throughout the year 2025. Uranium as a by-product of phosphate mining will also accrue, but will only amount to some 10 percent of the uranium mining throughout 2025. Besides the existing uranium deposits, the uranium production in particular will be a decisive factor. The

maximum annual uranium production feasible for the year 2000 is estimated at 165,000 to 175,000 tons.

According to INFCE results, a comparison between uranium demand and production shows that even before the end of this century new deposits will have to be developed to a much larger degree than has been the case. Experts make differing suppositions as to the expansion of nuclear energy outside the East bloc. The uranium demand of these nuclear power plants can be met if new deposits are developed as early as the 1980s. Some 15 to 30 years are estimated to elapse between the initial search for uranium and the start of uranium production. This period, as well as the political instability in some uranium producing countries, could contribute to future uranium production being well below the geological and mining technology potential.

If one takes a long-term look at the years following the turn of the century and the higher estimates of worldwide nuclear energy demand, a comparison with the estimated uranium production shows that the use of the fast breeder and the improved light water reactors will become an absolute necessity around the turn of the century. In the case of the lower estimates concerning future energy demands, there will be no problems in the area of uranium supply up to the year 2025; one must take into account, however, that the installed light water reactors of the year 2000 will be dependent upon natural uranium throughout their lives and that an arbitrarily chosen target date of 2000 or 2025 is only indicative of the magnitude of the problem.

According to INFCE results, uranium enrichment does not present any problems. At present there are even over-capacities. The problems lie more in the area of political risks of proliferation of their technology. By means of a gas centrifuge, highly enriched uranium can be produced for making nuclear bombs. It is only by political measures and not by means of technical measures that proliferation can be prevented.

Heavy Water

Supplying the relatively few natural uranium reactors with heavy water does not present major problems. If there have been problems, they were not induced by economic shortages, but rather by government intervention. At the INFCE Conference substantial differences between the nations with uranium deposits and the consumer nations emerged as far as uranium supply and heavy water supply were concerned. The countries which purchase uranium stressed the disadvantageous effects of intervening measures suddenly and unilaterally imposed in the past by the uranium-producing countries, frequently even imposed retroactively, in spite of other agreements in force. They demanded a termination of such actions.

On the other hand, the uranium-producing countries emphasized that they were not willing to supply nuclear material under conditions which disrespect their aims of nonproliferation.

In essence, they were only willing to negotiate a procedure for handling the agreements. A nuclear fuel bank has been discussed, especially for smaller countries with a small nuclear energy program. This bank would supply the small countries with nuclear energy in case of a stoppage in uranium supply.

Nuclear Fuel Cycle, Plutonium Treatment

The capacities of existing and planned nuclear fuel cycle plants will not suffice for the decades to come in order to handle all fuel elements to be refuelled. In 2000, 70 percent of the burnt fuel elements outside the East bloc will still be in intermediate storage, untouched. Uranium savings by recycling nuclear fuels following refueling are not expected to take place until after 1990 in light water reactors and after 2000 in fast breeders. Worldwide, the Purex process technology is considered to be the only industrial recycling technique that is mature. Other recycling processes on a high technological level are not in sight. Improvements of the Purex process are being discussed. Any improvement, however, will require a high expense of research and development. The production of fuel elements from uranium and plutonium, so-called mixed-oxide fuel elements, does not present any technological and technical problems. Recycling, fuel element production, and plutonium processing can be handled safely within the regulations on the exposure to radioactive material for personnel and the entire population according to the International Commission on Radioactive Protection (ICRP). A comparison of the radiological effects on the environment of all phases of the closed fuel cycle shows that the effects of the refueling, the handling and final storage of radioactive wastes are much less dangerous than those of uranium mining and processing.

Efficiency and Nonproliferation

The decision of a country to use a specific fuel cycle depends on a variety of factors, i.e. the availability of capital and labor, and on the existing industrial infrastructure. No one fuel cycle has a general advantage. The efficiency of refueling in a stricter sense depends on the price of uranium, on waste management costs, and particularly on how the plutonium is utilized.

It was noted that the proliferation of nuclear weapons is primarily political and not a technical problem. In principle, fuel cycle plants utilizing nuclear energy can be used to render nuclear material useable for weapons. However, the specific construction of plants for the production of plutonium useable for weapons is much cheaper, technically simpler and can be done with less problems and ado. The risk of proliferation of nuclear weapons tied to the peaceful usage of nuclear energy must be compared to the advantages of nuclear energy, particularly in view of saving resources, in view of efficiency and safety of energy supply as well as in view of environmental impacts. The experience gained so far with the

safety measures in the area of refueling and plutonium usage is positive. It is desirable that new institutional solutions be developed from existing models of fissionable material control.

Fast Breeders

Fast breeders can drastically reduce uranium demand. The accumulated uranium demand of the Western World throughout the year 2025 assuming a moderate expansion of nuclear energy is estimated at 12.5 million tons; of those, only 5 million tons of uranium have been proven to exist so far, and 6.6 to 14.8 million tons are speculated. With a rapid expansion of nuclear energy light water reactors will not be able to handle this demand; one will have to resort to fast breeders. State of the art is the sodium-cooled fast breeder operating on the uranium-plutonium basis. Other types of breeders, particularly those involving the use of thorium, require considerable efforts and can therefore be made available on a long-term basis only.

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CSO: 5100

COVER-UP OF ATOMIC POWER PLANT ACCIDENTS DENIED

Duesseldorf ATOMWIRTSCHAFT-ATOMTECHNIK in German Mar 80 Supplement p II-III

[Article: "Are Accidents Kept Secret?"]

[Text] In September 1979, the Federation of Citizens' Initiatives for Environmental Protection (BBU) published a document "Accidents in German Nuclear Power Plants," which, according to its subtitle, is a "publication of the federal government's confidential reports on accidents." Already in its introduction, the document states that most accidents which have occurred in German nuclear power plants have never been revealed to the public. While the public is constantly told that German nuclear power plants are the safest in the world, the document states, these reports show that, in 1976 and 1977, a "significant incident technically related to safety" occurred in a German nuclear power plant every third day on the average. The Society for Reactor Safety (GRS) which has been commissioned by the federal minister of the interior, in agreement with the supervisory Laender authorities, to centralize and record systematically all significant events technically related to safety which occur in nuclear power plants did not leave the accusation unanswered; in the December 1979 issue (No. GRS-S-30) of its publication STELLUNGNAHMEN ZU KERNENERGIEFRAGEN, it published an answer to the BBU document. The BBU document is published in the Appendix so it can be referred to. Below is an excerpt from the answer; the publication in which it has appeared can be ordered from GRS in Cologne.

By using a dramatic title, BBU creates the impression that its document is revealing secret reports from the federal government concerning accidents alleged to have occurred in German nuclear power plants. After being given that impression, one feels doubly deceived; what one finds here is merely a compilation of GRS reports concerning what is called "significant incidents technically related to safety"; according to the text, these reports, however, do not originate from the federal government, but from the operators of

nuclear power plants exclusively. To the reader's surprise, BBU is using these reports as chief evidence against the federal government, while at the same time accusing it of manipulation. Among other things, BBU infers from these reports that, in 1976, an accident occurred in German nuclear power plants on the average every third day.

By failing to make a difference between words such as "accident," "disturbance" and "significant incident technically related to safety," BBU leads the lay reader to equate every significant incident technically related to safety with an accident. True, it is not easy for the layman always to use correctly the expressions denoting concepts which are necessary and commonly used among experts; nuclear technology is no exception to the rule. Nevertheless, even though BBU is striving in good faith for clarification, it cannot escape the reproach of not having taken the relevant literature (e.g. Atomic Energy Law and Ordinance on Radiation Protection) into consideration in its presentation. This is where definitions of the concepts are to be found. A comprehensive generic term, namely "significant event technically related to safety" has been created. It is used to describe:

- events which could lead to danger for the personnel and the environment and are characterized as accidents;
- events which were taken into consideration when the plant was constructed, and which, as a rule, for reasons technically related to safety, lead to a shutdown of the plant; these are characterized as disturbances;
- events which remain below the disturbance threshold.

Bearing in mind the above progression in the concepts introduced, which corresponds to the significance of the event considered, then one can state: accidents, and therefore dangers for plant personnel and for the environment, have never occurred in German nuclear power plants.

The expression "significant event technically related to safety" is a technical concept which cannot be understood by mere reference to everyday's language. It should be differentiated from the events which have a purely operational significance, for instance a nuclear plant shutdown to replace fuel elements. "Significant," therefore, does not mean the same as "serious."

To evaluate events, BBU uses the categories of disturbances which are contained in what is called reporting criteria for significant incidents technically related to safety. These reporting criteria are nothing more than a listing of examples of events of various technical and safety levels of significance, and which the operator has the obligation to report. Following the corresponding classification, the operator must report each event to the supervisory authorities within a prescribed period of time (proportionate to the importance of the event). The disturbance categories are not a substitute for a detailed analysis and a definitive evaluation of the event. This remains the subject of a detailed investigation.

The authorities in charge of supervising nuclear power plants have used the above categories since 1975. Category A covers events which are significantly technically related to safety. These may require immediate measures to ensure the safety of the plant personnel, of the environment or of the facilities. Category B covers events which may be significantly technically related to safety. These are, for instance, those which do not require immediate measures since they do not immediately affect the safety of persons or facilities, but the cause of which must be removed immediately (for instance: failure of an emergency Diesel generator at the time of its inspection; if it had been needed at that time, it would have failed and, under unfavorable circumstances, it would have placed the facility in a condition of reduced safety). Category C covers "other particular incidents," which are not significantly technically related to safety and, therefore, rather belong among the routine cases which occur in complex technical facilities.

Disturbance categories A, B, C, are not identical to the divisions adopted by the Ordinance on Radiation Protection, i.e. accidents, disturbances, other significant events technically related to safety; for instance, Category A events do not fundamentally imply a danger to the plant personnel or to the environment. They are also far from including nothing but accidents. BBU has neglected to indicate these important distinctions in its publication.

BBU has failed to indicate correctly the origin of the reports on significant events technically related to safety. These are issued neither by the nuclear plant operators nor by the federal government. They are prepared by GRS. Of course, the initial information is provided by the operators, as was ordered in 1974 by the federal minister of the interior in agreement with the provincial supervisory authorities. Since 1975, following a decision of the Laender committee for nuclear energy, all significant events technically related to safety occurring in nuclear power plants in the FRG are centralized and recorded systematically.

For this purpose, GRS has set up a center which:

- records all events occurring in nuclear facilities even if they are only remotely significant in terms of safety;
- evaluates the data received in connection with individual, and in particular with general measures to be taken, and sometimes requires the intervention of additional experts;
- documents the data and ensures permanent and rapid access to it;
- prepares reports and reviews.

GRS, therefore, does not function merely as a mailbox for the federal minister of the interior as BBU would have us believe. It decides in last resort, for instance in classifying the events by categories on the basis of further investigations.

PROBLEMS OF NUCLEAR WASTE DISPOSAL CONTINUE

Frankfurt/Main FRANKFURTER RUNDSCHAU in German 31 Mar 80 p 20

[Article by Norbert Klaschka: "The Growing Radioactive Waste Dumps"]

[Text] The quantity of radioactive waste in the FRG keeps growing. Largely unnoticed by the public, and overshadowed by the controversy on where to put highly radioactive wastes from nuclear power plants, waste dumps containing materials of low and medium radioactivity are growing--slowly but steadily. With Gorleben stranded for the time being, the future of waste disposal is not clear, and even the problem of reprocessing spent fuel elements has not been solved by Hesse's willingness to build a 350 tcn facility. Soon, the responsible authorities may have to face the burning problem of the disposal of waste materials of low and medium radioactivity.

Until the end of 1978, there was no problem. The stuff went smoothly from all Laender into the abandoned salt mine Asse II, approximately 20 kilometers southeast of Brunswick. Half of the waste came from the Karlsruhe nuclear research center, 30 percent from other research facilities--including hospitals--and 20 percent from nuclear power plants.

Since 1 January 1979, business has come to a standstill. The proprietor of Asse, the Munich Society for Radiology and Environmental Research (GSF)--a large research center of which 90 percent is owned by the federal government--has had to curtail its operations in the "experimental final storage." In this case, it was not a victory of the environmentalists, nor was it an unexpected natural phenomenon which prevented storage inside the mountain from which salt had been extracted between 1906 and 1964. Rather, varying jurisdictions, new legal regulations and interminable licensing procedures have ended the experiment for the time being.

The federal government had bought the Asse in 1965; storage, of low radioactivity wastes at first, began in 1967. The storage, which was said to be an experiment, was authorized by the competent board of mines according to the Ordinance on Radiation Protection. Then, suddenly, the Atomic Energy Law required a lengthy planning assessment procedure. Lower Saxony stopped storage on 31 December 1978.

After that, in April 1979, GSF filed an application with the board of mines for "retrievable temporary storage" in the Asse which, meanwhile, is said not to have much chance of being granted. Some time later, the competent physico-technical federal institute in Brunswick asked Lower Saxony's ministry of social affairs to start a planning assessment procedure for a final storage. GSF, which in fact is under the control of the federal research minister, has again nothing to do with the final storage which falls within the competence of the federal minister of the interior. GSF's spokesman Heinz-Joerg Haury is annoyed: "We are a research center, not a garbage disposal."

According to Kenner, a planning assessment procedure can last up to seven years. By then, the provincial collection centers for these wastes will have been full for a long time. In Neuherberg near Munich, where GSF maintains Bavaria's temporary storage, a bottleneck is expected already in mid-1981. Reactor operators who used to bring their low and medium radioactivity wastes directly into the Asse will also be faced with problems: in the Isar I nuclear power plant (KKI) in Ohu near Landslut (Bavaria) for instance, the drums are piling up at the rate of 500 to 600 per year of operation. For the time being, according to a spokesman for KKI, the storage facilities are still sufficient. Future possibilities are said to be under examination. The demolition of closed nuclear power plants also depends on these storage possibilities.

In the Asse, experiments were made with Gorleben in view. Experiments at high temperatures (about 400°C) such as are produced where highly radioactive wastes are stored, still continue. Until the end of 1978, roughly 124,000 200-liter drums containing low radioactivity wastes, and 1,300 drums containing medium radioactivity wastes were stored. These fill only 5 percent of the 130 giant chambers representing 4 million cubic meters of space. Incidentally: right when storage was discontinued, construction of a company spur track was completed.

9294
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NUCLEAR REACTOR SHUT DOWN FOR SEVERAL MONTHS

Paris LE MONDE in French 27 Mar 80 p 12

[Article by Beatrice Houchard: "Several Months of Shutdown for No 2 Reactor at the Nuclear Power Plant of Saint-Laurent-des-Eaux"]

[Text] Blois--No 2 reactor at the natural graphite-gas-uranium nuclear power plant of Saint-Laurent-des-Eaux (Loir-et-Cher), whose operation had been interrupted on 13 March following an accident, is probably out of service for several months (LE MONDE, issue of 16-17 March). During a recent meeting of the departmental committee of information on the operation of the power plant, it was confirmed that a break in the fuel casing, insufficiently cooled through lack of discharge of the carbonic gas used to absorb the heat produced, was the cause of the accident.

The increase in radioactivity resulting from that accident was about 1,000 times the customary amount in normal operation. "However," the power plant director asserted, "at the closing of the power plant, the increased amount involved in escaping radioactivity was only one-hundredth the amount produced by the works of a luminous watch." Steps were taken to make sure that the containment would be continued to prevent gaseous radioactive effluents from escaping into the atmosphere.

No deliberate radioactive discharge has been made to the outside. This cannot be undertaken as long as there is a difference between the result of the measurements made on the nuclear parameters and the corresponding maximum values authorized. When conditions will have been corrected to permit the discharge of carbonic gas from the reactor's primary circuit, the circuit will be drained and a televisual evaluation can begin.

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TRAFFIC ACCIDENT INVOLVES NUCLEAR MATERIALS

Paris L. HUMANITE in French 26 Mar 80 p 14

[Text] A truck, bearing the inscription "Attention Radioactivity," was involved in a traffic accident yesterday at 1400 hours at a crossroad near Meyargues on the left bank of the Durance River in Bouches-du-Rhone.

The vehicle, which was coming from the Center for Nuclear Studies (CEN) of Cadarache and was headed toward Marcoule escorted by the police, collided with a pickup and another truck.

The escorted truck, belonging to a private firm, was transporting lead boxes containing "sensitive elements." The CEN did not give any details on the nature of the materials; it indicated only that fissionable materials were involved, not yet used in a reactor, and not radioactive waste resulting from fission.

The lead containers were transferred to another vehicle, and this operation lasted until 1600 hours. The road was opened to traffic after trackings--which turned out to be negative--of possible radioactivity had been made in the vicinity of the wrecked truck by the departmental services of civilian protection and the Cadarache CEN directorate.

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SWITZERLAND

GOVERNMENT PROMOTES SEARCH FOR URANIUM ORE

Frankfurt/Main FRANKFURTER RUNDSCHAU in German 22 Mar 80 p 13

[Article by Peter Amstutz: "Switzerland Is Looking for an 'Emergency Supply' of Uranium"]

[Text] In 1975 when the United States, regardless of binding treaties, issued a temporary halt on uranium deliveries, an otherwise rather fussy Federal Parliament came alive. A member of the National Council (people's representative) from Basel tempted fate by saying: "For the first time Switzerland is confronted with the express threat that the basic material for operating its nuclear power plants can be cut off. If the countries that produce petroleum and uranium should form an alliance, then they could force their will on the nations that have no energy." But how does a small neutral country oppose such pressure tactics?

Among other things by "exploration of Swiss uranium deposits." This will get underway after the snow melts in the spring. With a research outlay of probably about 3 million Swiss francs, Bern, together with the country's private businesses, intends to accelerate up to 1985 the search for the country's own "emergency supply of uranium." On the basis of earlier preliminary efforts the undertaking appears to be completely within reason. At present, the following balance sheet of prospecting work done so far is the official position: "It is apparent that there are numerous uranium mineral deposits in Switzerland, primarily in the Valais and Buenden Alps. The explorations, which were undertaken with relatively modest means, do not as yet permit any final judgment about their practical significance."

Swiss uranium was first discovered in Valais Canton in 1956, along the border with Italy. Since then the thinking of geologists has been dominated by the "extent and course of deposits worth exploring." Today it is known from a competent authority that basically zones "that promise to yield uranium" are located on both sides of the Rhone River valley, in the Gotthard region and in the upper Rhine valley as well as in several side valleys. To date, mostly in the summer months, students of the earth sciences intent on earning some spending money were the ones swinging the geologist's hammers in federal "uranium regions," in order to carry out the first paltry explorations. Even foreign specialists from the FRG were repeatedly encountered on Swiss mountain tops between 1,600 and 2,000 meters. Important international financial groups paid for such "expeditions."

But for the time being now Bern wants "to take stock of the modest inventory of its own energy sources and raw materials in the event that in times of crisis it would be necessary to cover any stop in deliveries." Federal independence of foreign uranium deliveries will no doubt have to remain a dream. The Swiss nuclear power plants currently producing "atomic power" and "fed" primarily by the FRG, the United States, Nigeria, Gabun, South Africa and France. Since the issuance of the uranium embargo at the beginning of 1977 Switzerland has continued to be in a treatyless state with Canada.

For the time when perhaps under the most unfavorable crisis conditions imaginable "the oven" would be "out" in the Swiss nuclear power plants, the government had the following determination made: "The plants have a reserve of finished fuel elements adequate to recharge for 1 year. Directly after changing fuel, should the supply be disrupted, the plants could be operated even for 2 years." Between Swiss nuclear power plants and foreign uranium suppliers there are numerous delivery contracts for periods ranging from 4 to 30 years.

Canadian and other experiences with the contract loyalty of uranium producers were a decisive factor in the deliberations in the Swiss capital concerning the fact that the modest outlay for exploring native mineral resources would really have to be worthwhile. A feeling of dependence that is just a bit smaller would be worth such an effort in the opinion of the experts in government and private industry. Up till now, to people abroad, Swiss nuclear power plants appeared exclusively as cocarriers and copayers in the exploration and development of new uranium deposits. But now "people" expect their financial commitment even in their own Alpine area. For the government's credit acts only as a small "igniter" in order to attract private investment. "We must be able to bring all our guns to bear in the upcoming drillings," is how Felix Gillieron in Bern characterizes the seriousness of the hour; he is the official of the Department of the Interior who is responsible for the scientific administration.

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END

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WORLDWIDE SERIAL REPORTS

WORLDWIDE REPORT: Environmental Quality
WORLDWIDE REPORT: Epidemiology
WORLDWIDE REPORT: Law of the Sea
WORLDWIDE REPORT: Nuclear Development and Proliferation
WORLDWIDE REPORT: Telecommunications Policy, Research and Development

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